

Final Storm Drainage Report

Parcel D at Issaquah Highlands
ISSAQUAH, WASHINGTON



07/06/2018

Approved By: Gary R. Sharnbroich, P.E.

Prepared By: Nicholas E. Johnson E.I.T.

Date: July 06, 2018

Project No.: 17136



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Appendix A. King County Parcel Information

Appendix B. Geotech Report

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1. Project Overview

The proposed site is located in Issaquah, Washington on Parcel D of the South Expansion area in Issaquah Highlands and is bordered on the west by steep slopes leading to the Sunset Walk at Issaquah Highlands, on the north by a potential plat to be incorporated into Issaquah Highlands and NE Park Drive, and on the south and east by the Forest Ridge at Issaquah Highlands Parcel C. See *Figure 1-1: Vicinity Map* on page 2. The existing site is a 1.12-acre lot that was mass graded as part of the South Expansion Mass Grading Plan but has yet to be developed beyond that point. The King County tax parcel ID numbers for the one parcel involved in this project is in Table 1 below. Parcel Information is provided in Appendix A.

Table 1: Parcel Information

King County Parcel IDs & Areas
Parcel – 3630400040

The topography of the site varies from an engineered steep slope on the west side of the site, to gently sloping from east to west across the remainder of the site. Soils underlying the site generally consist of a thin mantle of structural fill (up to 3 feet thick) overlying medium dense to very dense glacial outwash deposits. Both the fill and glacial deposits generally consist of sand and gravel with varying silt content. Groundwater was not encountered in any of the soil explorations though shallow perched lenses have been observed in previous exploration locations across the site.

Runoff from the site generally drains from east to west down the existing slope to the gradually sloped area at the toe of the slope that is currently vegetated with low-growing erosion control groundcover that is heavily compacted. Under proposed conditions, site drainage will connect to public drainage systems installed on Parcel C, leading to a series of city owned catch basins in NE Falls Drive that convey runoff to a storm drain system that flows to a regional Detention Pond in Tract QM.

A comprehensive drainage report for the entire Issaquah Highlands development has been prepared by Concept Engineers, Inc.

The 2005 King County Surface Water Design Manual per the City of Issaquah's standards was used to design the conveyance structures which now exist offsite and will serve the site's conveyance demands. For detailed calculations see the Parcel C Conveyance Calculations.

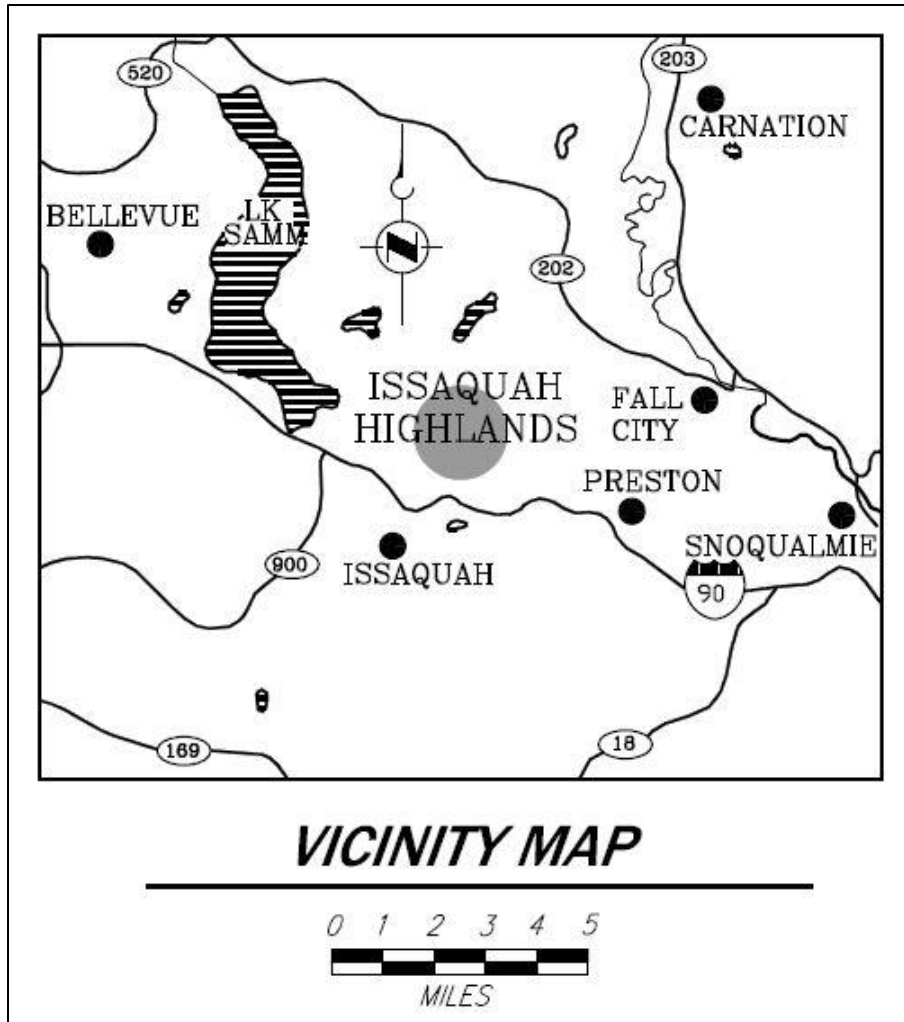


Figure 1-1: Vicinity Map

2. CONDITIONS AND REQUIREMENTS SUMMARY

2.1 Core Requirements

2.1.1 Core Requirement #1: Discharge at the Natural Location

The site will maintain its discharge location in the King County Regional Detention Pond in Tract QM.

2.1.2 Core Requirement #2: Offsite Analysis

An Offsite Analysis has been prepared in Section 3 of this report.

Falls a.k.a.
Sunset

2.1.3 Core Requirement #3: Flow Control

An overall analysis was conducted for the properties in the Forest Ridge at Issaquah Highlands development see submittal details and Conveyance Calculations from Forest Ridge at Issaquah Highlands Parcel C. The detention pond addresses site flows from the Forest Ridge designation including Parcel D.

2.1.4 Core Requirement #4: Conveyance System

See Forest Ridge at Issaquah Highlands Parcel C Conveyance Calculations and submittal documents for conveyance details.

2.1.5 Core Requirements #5: Erosion and Sediment Control

See Section 8 of this Report.

2.1.6 Core Requirement #6: Maintenance and Operations

The Home Owner's Association (HOA) will be responsible for the maintenance and operations of the storm water management system. An O&M manual is included in Section 10 of this manual.

2.1.7 Core Requirement #7: Financial Guarantees and Liability

A construction cost summary and estimate are associated with the larger Forest Ridge at Issaquah Highlands master plan. A specific cost estimate for Parcel D will not be supplied at this time.

2.1.8 Core Requirement #8: Water Quality

The project will be designed to the sensitive lake water quality menu. This will be provided differently depending on the Subbasin.

2.2 Special Requirement #1: Other Adopted Area-Specific Requirements

2.2.1 Critical Drainage Areas

Per the 2005 CAO Update Critical Aquifer Recharge Areas map, this project is not within a critical drainage area.

2.2.2 Master Drainage Plan

Not applicable.

2.2.3 Basin Plans

The City of Issaquah is located within the Lake Sammamish Watershed.

2.2.4 Salmon Conservation Plans (SCPs)

Not applicable

2.2.5 Stormwater Compliance Plans (SWCPs)

Not applicable.

2.2.6 Lake Management Plans (LMPs)

The City of Issaquah and King County published a report entitled *Issaquah Creek Watershed Management Committee Proposed Basin and Nonpoint Action Plan* in September 1994. This report was adopted and the water quality section in the King County manual was amended by the City of Issaquah accordingly. The site does outlet into a master detention pond and not into any of the sensitive surface waters; however, due to city codes, the site will apply the Sensitive Lake Water Quality Menu.

2.2.7 Flood Hazard Reduction Plan Updates (FHRPs)

This project is not within a floodplain and is not within an area with an applicable Flood Hazard Reduction Plan. Therefore, additional requirements from a Flood Hazard Reduction Plan do not apply.

2.2.8 Shared Facility Drainage Plans (SFDPs)

Not applicable.

2.3 Special Requirement #2: Floodplain / Floodway Delineation

This project is not located within the 100-year floodplain.

2.4 Special Requirement #3: Flood Protection Facilities

As this project is not located within a 100-year floodplain there are no levees, revetments or berms within the project.

2.5 Special Requirement #4: Source Controls

These requirements are not applicable as the project is not a commercial, industrial or multi-family development.

2.6 Special Requirement #5: Oil Control

This requirement does not apply because the project is not a commercial or industrial development, nor is it expected to have more than 15,000 vehicles per day.

3. Off-Site Analysis

Upstream

The property upstream of the site (to the east) has already been developed under Parcel C. Runoff from this area is therefore conveyed into catch basins and conveyance pipes within NE Falls Drive. These conveyance flows then drain southwest, away from the site, and eventually discharge into the King County Regional Detention Pond (see existing site conditions, following page).

Onsite

Flows onsite currently follow the general grading of the site, draining east to west. Some vegetation exists on site but flows generally continue due west to the steep engineered slopes adjacent to the property. Erosion control devices have been installed along the steep slope to prevent any shifting of soils. Drainage typically disperses and infiltrates through this area. A negligible amount of runoff currently flows into the Parcel C conveyance system. Under proposed conditions, flows will be picked up by onsite conveyance structures and connected into the existing Parcel C conveyance system and routed southwest into the King County Regional Detention Pond (see Site Plan, this report).

4. Flow Control and Water Quality Design

4.1 Performance Standards

All stormwater facilities will be designed in accordance with the 2009 King County Surface Water Design Manual with the City of Issaquah Surface Water Design Manual Addendum. Per the City of Issaquah Addendum in Section 1.2.8 Core Requirement #8, the City requires all water quality (WQ) treatment facilities to be designed to the Sensitive Lake WQ treatment menu. Therefore, the project site will meet the requirements from the Sensitive Lake Protection Menu.

Flow Control: Conservation Flow Control Standard

Since the project is required to meet a max release rate per the City of Issaquah's development agreement the developed discharge durations do not need to match the pre-developed durations for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow. All flows will be detained in the King County Regional Detention Pond (for additional details see Forest Ridge at Issaquah Highlands, Parcel C.

Falls a.k.a.
Sunset

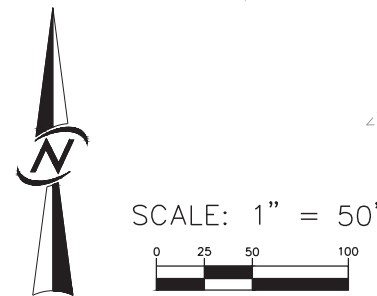
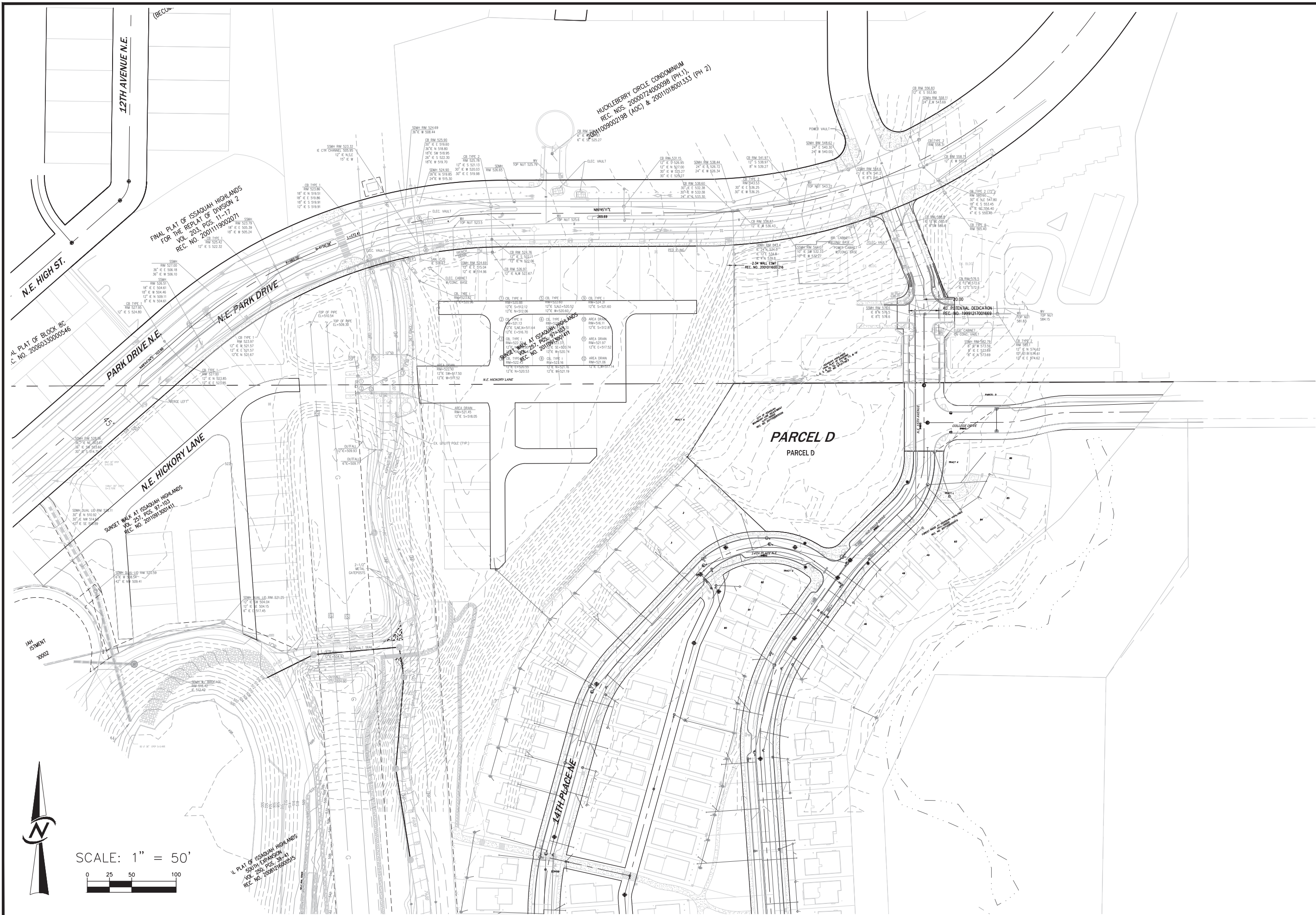
Water Quality: Sensitive Lake Treatment Area

The Sensitive Lake Treatment Menu includes the following pollutant removal targets:

- Total Suspended Solids (TSS) = 80% reduction
- Total Phosphorus > 50% reduction

The King County Regional Detention Pond was designed in accordance with the 2009 King County Surface Water Design Manual with the City of Issaquah Surface Water Design Manual Addendum, and as such meets water quality standards for the master development area.

A more detailed discussion and sizing calculations of the water quality treatment facility proposed for this project can be found in the submittal and Conveyance Calculation report for Forest Ridge at Issaquah Highlands.



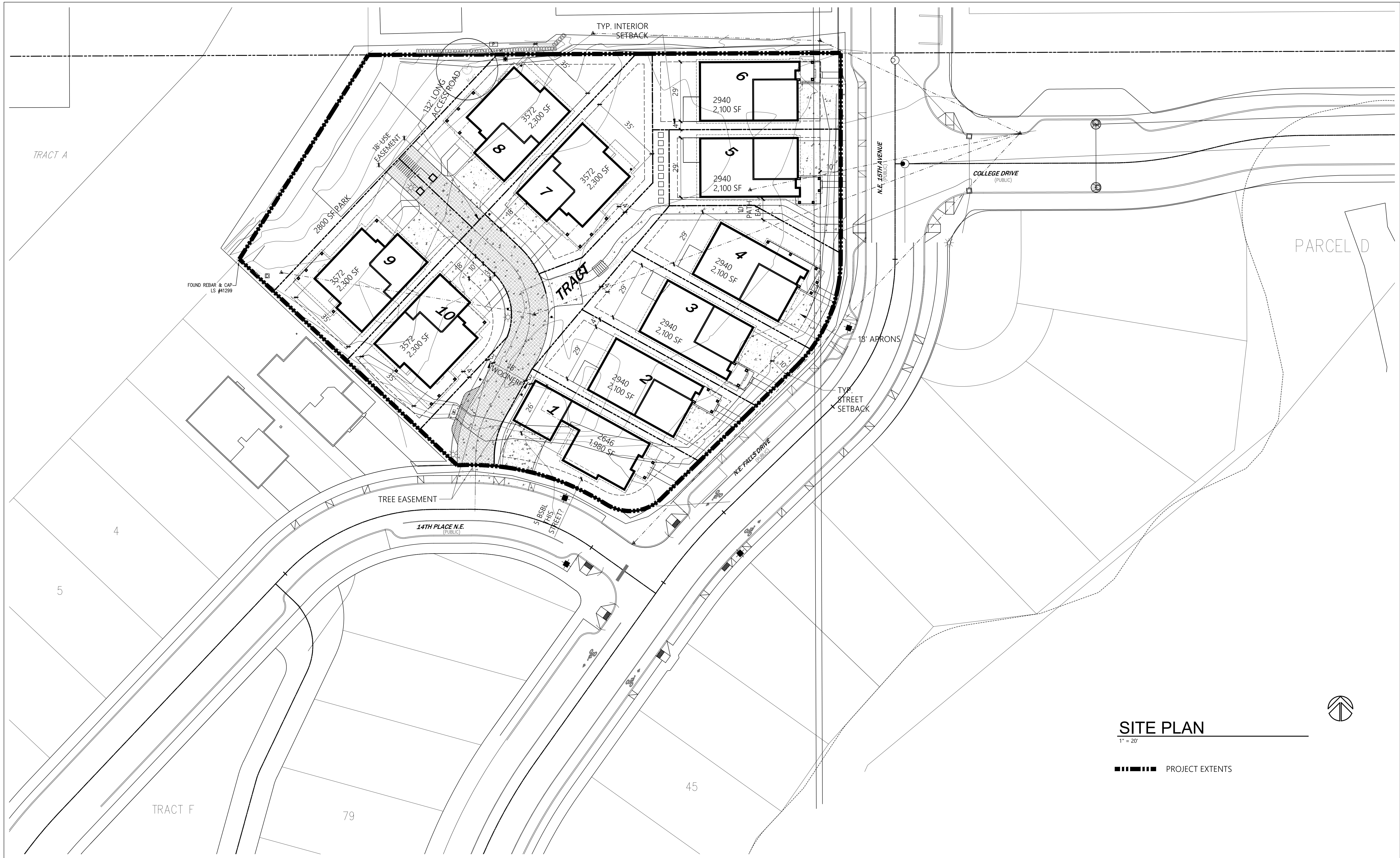
EXISTING CONDITIONS		PROJECT NUMBER 17136	
PARCEL D		DRAWING P2.0	
POLYGON WLH, L.L.C. 11624 SE 5TH STREET BELLEVUE, WASHINGTON 98005		SHEET 2 OF 9	
SCALE: DESIGNED DRAWN CHECKED DATE VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING 0" 1"		NO. DATE REVISION BY CK	

14771 NE 29th Place Suite 101
Bellevue, Washington 98007
425.885.7877 Fax 425.885.7963

CORE DESIGN
ENGINEERING • PLANNING • SURVEYING

2-2-2018

PRE 17-00017



SITE PLAN

1" = 20'

PROJECT EXTENTS



Westridge Tract D

A Single Family Development

Issaquah, WA

Polygon Northwest Company

Site Plan

Scale: 1" = 20'

Drawn By: JH

Date: 10-04-17

Date Plotted: 6-19-18

Sheet No.:

A1

Job No.: 16-32

H:\1632\SITE PLAN.DWG



Milbrandt Architects, Inc., P.S.

25 Central Way, Suite 210, Kirkland, Washington 98033 Phone: 425-454-7130 Fax: 425-658-1208 Website: <http://www.milbrandtarch.com>

5. Conveyance System and Analysis and Design

See Forest Ridge at Issaquah Highlands Parcel C Conveyance Calculations and submittal documents for conveyance details as well as conveyance calculations for the Parcel D site submitted under separate cover.

6. Special Reports and Studies

- Geotechnical Report

7. Other Permits

- Building Permit
- Site Development Permit

8. Erosion and Sedimentation Control Analysis and Design

TESC measures are proposed for duration of the construction phase of the project. Additional silt fence and interceptor swales will be added to stabilize the site. The TESC plans have been included at the end of this section.

9. Bond Quantities, Facility Summaries and Declaration of Covenant

A construction cost summary and estimate are associated with the larger Forest Ridge at Issaquah Highlands master plan. A specific cost estimate for Parcel D will not be supplied at this time.

10. Operations and Maintenance Manual

The operations and maintenance information has been provided with this Final Technical Information Report and is attached at the end of this section in Appendix C (based on the 2009 KCSWDM).

Appendix A

Parcel Information

King County Department of Assessments

Fair, Equitable, and Understandable Property Valuations

You're in: [Assessor](#) >> [Look up Property Info](#) >> [eReal Property](#)

Department of Assessments

500 Fourth Avenue, Suite ADM-AS-0708, Seattle, WA 98104

Office Hours: Mon - Fri 8:30 a.m. to 4:30 p.m.

TEL: 206-296-7300
FAX: 206-296-5107
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PARCEL

Parcel Number	362978-0150
Name	ESSEX PROPERTY TRUST INC
Site Address	1505 14TH PL NE
Legal	ISSAQUAH HIGHLANDS DIV 1,2,3,9,10 12,13,15,16,17 & 18 LESS POR PER REC # 20140820001423

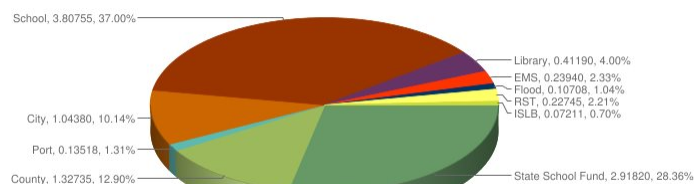
BUILDING 1

Year Built	2001
Building Net Square Footage	10860
Construction Class	WOOD FRAME
Building Quality	AVERAGE/GOOD
Lot Size	493104
Present Use	Apartment
Views	Yes
Waterfront	



TOTAL LEVY RATE DISTRIBUTION

Tax Year: 2018 Levy Code: 1436 Total Levy Rate: \$10.29002 Total Senior Rate: \$5.14973



54.92% Voter Approved

[Click here to see levy distribution comparison by year.](#)

TAX ROLL HISTORY

Valued Year	Tax Year	Appraised Land Value (\$)	Appraised Imps Value (\$)	Appraised Total (\$)	Taxable Land Value (\$)	Taxable Imps Value (\$)	Taxable Total (\$)
2017	2018	12,327,600	75,849,400	88,177,000	12,327,600	75,849,400	88,177,000
2016	2017	11,094,800	72,221,200	83,316,000	11,094,800	72,221,200	83,316,000
2015	2016	9,862,000	60,138,000	70,000,000	9,862,000	60,138,000	70,000,000
2014	2015	9,862,000	56,061,700	65,923,700	9,862,000	56,061,700	65,923,700
2013	2014	9,862,000	50,255,700	60,117,700	9,862,000	50,255,700	60,117,700
2012	2013	10,123,300	39,314,700	49,438,000	10,123,300	39,314,700	49,438,000
2011	2012	14,172,600	23,450,400	37,623,000	14,172,600	23,450,400	37,623,000
2010	2011	14,172,600	23,450,400	37,623,000	14,172,600	23,450,400	37,623,000
2009	2010	14,172,600	28,803,400	42,976,000	14,172,600	28,803,400	42,976,000
2008	2009	8,098,600	39,652,400	47,751,000	8,098,600	39,652,400	47,751,000
2007	2008	9,100,000	36,790,000	45,890,000	9,100,000	36,790,000	45,890,000
2006	2007	7,750,000	24,256,000	32,006,000	7,750,000	24,256,000	32,006,000
2005	2006	6,681,400	22,890,600	29,572,000	6,681,400	22,890,600	29,572,000
2004	2005	6,681,400	22,890,600	29,572,000	6,681,400	22,890,600	29,572,000
2003	2004	6,675,000	21,688,000	28,363,000	6,675,000	21,688,000	28,363,000
2002	2003	2,025,000	18,573,100	20,598,100	2,025,000	18,573,100	20,598,100
2001	2002	185,000	20,413,100	20,598,100	185,000	20,413,100	20,598,100
2000	2001	301,000	15,322,000	15,623,000	301,000	15,322,000	15,623,000
1999	2000	228,000	3,673,000	3,901,000	228,000	3,673,000	3,901,000
1998	1999	210,000	0	210,000	210,000	0	210,000

Reference Links:

- [King County Taxing Districts Codes and Levies \(.PDF\)](#)
- [King County Tax Links](#)
- [Property Tax Advisor](#)
- [Washington State Department of Revenue \(External link\)](#)
- [Washington State Board of Tax Appeals \(External link\)](#)
- [Board of Appeals/Equalization](#)
- [Districts Report](#)
- [iMap](#)
- [Recorder's Office](#)

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Appendix B

Geotech Report



July 3, 2018
ES-1940.04

Earth Solutions NW LLC

Geotechnical Engineering, Construction
Observation/Testing and Environmental Services

Polygon-WLH, LLC
11624 Southeast 5th Street, Suite 100
Bellevue, Washington 98005

Attention: Mr. David Avenell

**Subject: Geotechnical Consultation
Forest Ridge Tract D
Northeast Falls Drive and College Drive
Issaquah, Washington**

Reference: Earth Solutions NW, LLC
Geotechnical Engineering Study
Forest Ridge at Issaquah Highlands
ES-1940, Dated October 24, 2011

Dear Mr. Avenell:

In accordance with your request, Earth Solutions NW, LLC (ESNW) has prepared this letter providing a summary of our site observations and recommendations related to the subject site in the Highlands area of Issaquah, Washington.

Project Description

The project area consists of a property located on west side of the intersection between College Drive and Northeast Falls Drive in Issaquah, Washington. The site is irregular in shape and was undeveloped at the time of this letter production. The site was vegetated with field grass and several native trees

Site topography is sloped in nature with slopes descending from east to west with elevation change on the order of approximately 20 feet or less.

Subsurface

ESNW reviewed the referenced report to evaluate the anticipated subsurface conditions for the subject site. Based on our review of the test pit data for the test pits most closely located to the subject site, we anticipate the soil on the subject site to be comprised of silty sand with gravel (Unified Soil Classification, SM) in a dense condition, and dense poorly graded gravel (GP).

Limited amounts of fill may be encountered surrounding the road alignments, sidewalks, and portions of the slopes on the subject site. The fill will more than likely be comprised of re-worked native silty sand with gravel (SM) soils, which was placed during previous earthwork for the surrounding sites.

Groundwater may be encountered on the subject site and will typically be observed in a perched condition at the contact between the weathered and unweathered glacial till soil.

Based on our review of the geologic maps and referenced report, the site is located in a transition zone comprised of recessional outwash (Qvr) and glacial till (Qvt) deposits.

Recommendations


In our opinion, the proposed residential buildings can be supported on conventional continuous and spread footing foundations bearing on competent native soils, re-compacted native soils, or structural fill. Suitable bearing conditions should be encountered at a depth of two to three feet below the existing ground surface. Where loose or unsuitable soil conditions are exposed at foundation subgrade elevations, compaction of the soils to the specifications of structural fill, or overexcavation and replacement with a suitable structural fill material will be necessary.

Exploration of the soil conditions on the site will be necessary in order to provide specific recommendations for development.

We trust this information meets your needs. If you have any questions or require additional information, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC


for: Stephen H. Avril
Project Geologist



Kyle R. Campbell, P.E.
Principal Engineer

Appendix C

O&M Manual

NO. 1 – DETENTION PONDS			
Maintenance Component	Defect or Problem	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Site	Trash and debris	Any trash and debris which exceed 1 cubic foot per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size office garbage can). In general, there should be no visual evidence of dumping.	Trash and debris cleared from site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Top or Side Slopes of Dam, Berm or Embankment	Rodent holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed or destroyed and dam or berm repaired.
	Tree growth	Tree growth threatens integrity of slopes, does not allow maintenance access, or interferes with maintenance activity. If trees are not a threat or not interfering with access or maintenance, they do not need to be removed.	Trees do not hinder facility performance or maintenance activities.
	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted slope.	Slopes stabilized using appropriate erosion control measures. If erosion is occurring on compacted slope, a licensed civil engineer should be consulted to resolve source of erosion.
	Settlement	Any part of a dam, berm or embankment that has settled 4 inches lower than the design elevation.	Top or side slope restored to design dimensions. If settlement is significant, a licensed civil engineer should be consulted to determine the cause of the settlement.
Storage Area	Sediment accumulation	Accumulated sediment that exceeds 10% of the designed pond depth.	Sediment cleaned out to designed pond shape and depth; pond reseeded if necessary to control erosion.
	Liner damaged (If Applicable)	Liner is visible or pond does not hold water as designed.	Liner repaired or replaced.
Inlet/Outlet Pipe.	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ¼-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.
Emergency Overflow/Spillway	Tree growth	Tree growth impedes flow or threatens stability of spillway.	Trees removed.
	Rock missing	Only one layer of rock exists above native soil in area five square feet or larger or any exposure of native soil on the spillway.	Spillway restored to design standards.

NO. 2 – INFILTRATION FACILITIES

Maintenance Component	Defect or Problem	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Site	Trash and debris	Any trash and debris which exceed 1 cubic foot per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size office garbage can). In general, there should be no visual evidence of dumping.	Trash and debris cleared from site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Infiltration Pond, Top or Side Slopes of Dam, Berm or Embankment	Rodent holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed or destroyed and dam or berm repaired.
	Tree growth	Tree growth threatens integrity of dams, berms or slopes, does not allow maintenance access, or interferes with maintenance activity. If trees are not a threat to dam, berm, or embankment integrity or not interfering with access or maintenance, they do not need to be removed.	Trees do not hinder facility performance or maintenance activities.
	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted slope.	Slopes stabilized using appropriate erosion control measures. If erosion is occurring on compacted slope, a licensed civil engineer should be consulted to resolve source of erosion.
	Settlement	Any part of a dam, berm or embankment that has settled 4 inches lower than the design elevation.	Top or side slope restored to design dimensions. If settlement is significant, a licensed civil engineer should be consulted to determine the cause of the settlement.
Infiltration Pond, Tank, Vault, Trench, or Small Basin Storage Area	Sediment accumulation	If two inches or more sediment is present or a percolation test indicates facility is working at or less than 90% of design.	Facility infiltrates as designed.
Infiltration Tank Structure	Plugged air vent	Any blockage of the vent.	Tank or vault freely vents.
	Tank bent out of shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape.	Tank repaired or replaced to design.
	Gaps between sections, damaged joints or cracks or tears in wall	A gap wider than ½-inch at the joint of any tank sections or any evidence of soil particles entering the tank at a joint or through a wall.	No water or soil entering tank through joints or walls.
Infiltration Vault Structure	Damage to wall, frame, bottom, and/or top slab	Cracks wider than ¼-inch, any evidence of soil entering the structure through cracks or qualified inspection personnel determines that the vault is not structurally sound.	Vault is sealed and structurally sound.

NO. 2 – INFILTRATION FACILITIES

Maintenance Component	Defect or Problem	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Inlet/Outlet Pipes	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than 1/2-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
Access Manhole	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Large access doors/plate	Damaged or difficult to open	Large access doors or plates cannot be opened/removed using normal equipment.	Replace or repair access door so it can be opened as designed.
	Gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and covers access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or plate.	Lifting rings sufficient to lift or remove door or plate.
Infiltration Pond, Tank, Vault, Trench, or Small Basin Filter Bags	Plugged	Filter bag more than 1/2 full.	Replace filter bag or redesign system.
Infiltration Pond, Tank, Vault, Trench, or Small Basin Pre-settling Ponds and Vaults	Sediment accumulation	6" or more of sediment has accumulated.	Pre-settling occurs as designed
Infiltration Pond, Rock Filter	Plugged	High water level on upstream side of filter remains for extended period of time or little or no water flows through filter during heavy rain storms.	Rock filter replaced evaluate need for filter and remove if not necessary.
Infiltration Pond Emergency Overflow Spillway	Rock missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway. Rip-rap on inside slopes need not be replaced.	Spillway restored to design standards.
	Tree growth	Tree growth impedes flow or threatens stability of spillway.	Trees removed.

NO. 3 – DETENTION TANKS AND VAULTS

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash and debris which exceed 1 cubic foot per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size office garbage can). In general, there should be no visual evidence of dumping.	Trash and debris cleared from site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Tank or Vault Storage Area	Trash and debris	Any trash and debris accumulated in vault or tank (includes floatables and non-floatables).	No trash or debris in vault.
	Sediment accumulation	Accumulated sediment depth exceeds 10% of the diameter of the storage area for ½ length of storage vault or any point depth exceeds 15% of diameter. Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than ½ length of tank.	All sediment removed from storage area.
Tank Structure	Plugged air vent	Any blockage of the vent.	Tank or vault freely vents.
	Tank bent out of shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape.	Tank repaired or replaced to design.
	Gaps between sections, damaged joints or cracks or tears in wall	A gap wider than ½-inch at the joint of any tank sections or any evidence of soil particles entering the tank at a joint or through a wall.	No water or soil entering tank through joints or walls.
Vault Structure	Damage to wall, frame, bottom, and/or top slab	Cracks wider than ½-inch, any evidence of soil entering the structure through cracks or qualified inspection personnel determines that the vault is not structurally sound.	Vault is sealed and structurally sound.
Inlet/Outlet Pipes	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 3 – DETENTION TANKS AND VAULTS

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Access Manhole	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Large access doors/plate	Damaged or difficult to open	Large access doors or plates cannot be opened/removed using normal equipment.	Replace or repair access door so it can be opened as designed.
	Gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and covers access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or plate.	Lifting rings sufficient to lift or remove door or plate.

NO. 4 – CONTROL STRUCTURE/FLOW RESTRICTOR

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Structure	Trash and debris	Trash or debris of more than ½ cubic foot which is located immediately in front of the structure opening or is blocking capacity of the structure by more than 10%.	No Trash or debris blocking or potentially blocking entrance to structure.
		Trash or debris in the structure that exceeds ⅓ the depth from the bottom of basin to invert the lowest pipe into or out of the basin.	No trash or debris in the structure.
		Deposits of garbage exceeding 1 cubic foot in volume.	No condition present which would attract or support the breeding of insects or rodents.
	Sediment	Sediment exceeds 60% of the depth from the bottom of the structure to the invert of the lowest pipe into or out of the structure or the bottom of the FROP-T section or is within 6 inches of the invert of the lowest pipe into or out of the structure or the bottom of the FROP-T section.	Sump of structure contains no sediment.
	Damage to frame and/or top slab	Corner of frame extends more than ¼ inch past curb face into the street (if applicable).	Frame is even with curb.
		Top slab has holes larger than 2 square inches or cracks wider than ¼ inch.	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than ¼ inch of the frame from the top slab.	Frame is sitting flush on top slab.
	Cracks in walls or bottom	Cracks wider than ½ inch and longer than 3 feet, any evidence of soil particles entering structure through cracks, or maintenance person judges that structure is unsound.	Structure is sealed and structurally sound.
		Cracks wider than ½ inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering structure through cracks.	No cracks more than ¼ inch wide at the joint of inlet/outlet pipe.
	Settlement/ misalignment	Structure has settled more than 1 inch or has rotated more than 2 inches out of alignment.	Basin replaced or repaired to design standards.
FROP-T Section	Damaged pipe joints	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the structure at the joint of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of inlet/outlet pipes.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Ladder rungs missing or unsafe	Ladder is unsafe due to missing rungs, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
	Damage	T section is not securely attached to structure wall and outlet pipe structure should support at least 1,000 lbs of up or down pressure.	T section securely attached to wall and outlet pipe.
		Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
Cleanout Gate	Damaged or missing	Connections to outlet pipe are not watertight or show signs of deteriorated grout.	Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.
		Any holes—other than designed holes—in the structure.	Structure has no holes other than designed holes.
Cleanout Gate	Damaged or missing	Cleanout gate is missing.	Replace cleanout gate.

NO. 4 – CONTROL STRUCTURE/FLOW RESTRICTOR			
Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
		Cleanout gate is not watertight.	Gate is watertight and works as designed.
		Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
		Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.
Orifice Plate	Damaged or missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.
	Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.
	Deformed or damaged lip	Lip of overflow pipe is bent or deformed.	Overflow pipe does not allow overflow at an elevation lower than design
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than 1/8-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than 1/8-inch wide at the joint of the inlet/outlet pipe.
Metal Grates (If Applicable)	Unsafe grate opening	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and debris	Trash and debris that is blocking more than 20% of grate surface.	Grate free of trash and debris. footnote to guidelines for disposal
	Damaged or missing	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.
Manhole Cover/Lid	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open structure requires urgent maintenance.	Cover/lid protects opening to structure.
	Locking mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to Remove	One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.	Cover/lid can be removed and reinstalled by one maintenance person.

NO. 5 – CATCH BASINS AND MANHOLES

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Structure	Sediment	Sediment exceeds 60% of the depth from the bottom of the catch basin to the invert of the lowest pipe into or out of the catch basin or is within 6 inches of the invert of the lowest pipe into or out of the catch basin.	Sump of catch basin contains no sediment.
	Trash and debris	Trash or debris of more than ½ cubic foot which is located immediately in front of the catch basin opening or is blocking capacity of the catch basin by more than 10%.	No Trash or debris blocking or potentially blocking entrance to catch basin.
		Trash or debris in the catch basin that exceeds ⅓ the depth from the bottom of basin to invert the lowest pipe into or out of the basin.	No trash or debris in the catch basin.
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within catch basin.
		Deposits of garbage exceeding 1 cubic foot in volume.	No condition present which would attract or support the breeding of insects or rodents.
	Damage to frame and/or top slab	Corner of frame extends more than ¼ inch past curb face into the street (if applicable).	Frame is even with curb.
		Top slab has holes larger than 2 square inches or cracks wider than ¼ inch.	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than ¼ inch of the frame from the top slab.	Frame is sitting flush on top slab.
	Cracks in walls or bottom	Cracks wider than ½ inch and longer than 3 feet, any evidence of soil particles entering catch basin through cracks, or maintenance person judges that catch basin is unsound.	Catch basin is sealed and structurally sound.
		Cracks wider than ½ inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	No cracks more than ¼ inch wide at the joint of inlet/outlet pipe.
	Settlement/misalignment	Catch basin has settled more than 1 inch or has rotated more than 2 inches out of alignment.	Basin replaced or repaired to design standards.
	Damaged pipe joints	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the catch basin at the joint of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of inlet/outlet pipes.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 5 – CATCH BASINS AND MANHOLES

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Metal Grates (Catch Basins)	Unsafe grate opening	Grate with opening wider than $\frac{7}{8}$ inch.	Grate opening meets design standards.
	Trash and debris	Trash and debris that is blocking more than 20% of grate surface.	Grate free of trash and debris. footnote to guidelines for disposal
	Damaged or missing	Grate missing or broken member(s) of the grate. Any open structure requires urgent maintenance.	Grate is in place and meets design standards.
Manhole Cover/Lid	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open structure requires urgent maintenance.	Cover/lid protects opening to structure.
	Locking mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to Remove	One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.	Cover/lid can be removed and reinstalled by one maintenance person.

NO. 6 – CONVEYANCE PIPES AND DITCHES

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Pipes	Sediment & debris accumulation	Accumulated sediment or debris that exceeds 20% of the diameter of the pipe.	Water flows freely through pipes.
	Vegetation/roots	Vegetation/roots that reduce free movement of water through pipes.	Water flows freely through pipes.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Damage to protective coating or corrosion	Protective coating is damaged; rust or corrosion is weakening the structural integrity of any part of pipe.	Pipe repaired or replaced.
	Damaged	Any dent that decreases the cross section area of pipe by more than 20% or is determined to have weakened structural integrity of the pipe.	Pipe repaired or replaced.
Ditches	Trash and debris	Trash and debris exceeds 1 cubic foot per 1,000 square feet of ditch and slopes.	Trash and debris cleared from ditches.
	Sediment accumulation	Accumulated sediment that exceeds 20% of the design depth.	Ditch cleaned/flushed of all sediment and debris so that it matches design.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Vegetation	Vegetation that reduces free movement of water through ditches.	Water flows freely through ditches.
	Erosion damage to slopes	Any erosion observed on a ditch slope.	Slopes are not eroding.
	Rock lining out of place or missing (If Applicable)	One layer or less of rock exists above native soil area 5 square feet or more, any exposed native soil.	Replace rocks to design standards.

NO. 7 – DEBRIS BARRIERS (E.G., TRASH RACKS)

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed.
Site	Trash and debris	Trash or debris plugging more than 20% of the area of the barrier.	Barrier clear to receive capacity flow.
	Sediment accumulation	Sediment accumulation of greater than 20% of the area of the barrier	Barrier clear to receive capacity flow.
Structure	Cracked broken or loose	Structure which bars attached to is damaged - pipe is loose or cracked or concrete structure is cracked, broken or loose.	Structure barrier attached to is sound.
Bars	Bar spacing	Bar spacing exceeds 6 inches.	Bars have at most 6 inch spacing.
	Damaged or missing bars	Bars are bent out of shape more than 3 inches.	Bars in place with no bends more than ¼ inch.
		Bars are missing or entire barrier missing.	Bars in place according to design.
		Bars are loose and rust is causing 50% deterioration to any part of barrier.	Repair or replace barrier to design standards.

NO. 8 – ENERGY DISSIPATERS

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed.
Site	Trash and debris	Trash and/or debris accumulation.	Dissipater clear of trash and/or debris.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Rock Pad	Missing or moved Rock	Only one layer of rock exists above native soil in area five square feet or larger or any exposure of native soil.	Rock pad prevents erosion.
Dispersion Trench	Pipe plugged with sediment	Accumulated sediment that exceeds 20% of the design depth.	Pipe cleaned/flushed so that it matches design.
	Not discharging water properly	Visual evidence of water discharging at concentrated points along trench (normal condition is a "sheet flow" of water along trench).	Water discharges from feature by sheet flow.
	Perforations plugged.	Over 1/4 of perforations in pipe are plugged with debris or sediment.	Perforations freely discharge flow.
	Water flows out top of "distributor" catch basin.	Water flows out of distributor catch basin during any storm less than the design storm.	No flow discharges from distributor catch basin.
	Receiving area over-saturated	Water in receiving area is causing or has potential of causing landslide problems.	No danger of landslides.
Gabions	Damaged mesh	Mesh of gabion broken, twisted or deformed so structure is weakened or rock may fall out.	Mesh is intact, no rock missing.
	Corrosion	Gabion mesh shows corrosion through more than ¼ of its gage.	All gabion mesh capable of containing rock and retaining designed form.
	Collapsed or deformed baskets	Gabion basket shape deformed due to any cause.	All gabion baskets intact, structure stands as designed.
	Missing rock	Any rock missing that could cause gabion to lose structural integrity.	No rock missing.
Manhole/Chamber	Worn or damaged post, baffles or side of chamber	Structure dissipating flow deteriorates to ½ or original size or any concentrated worn spot exceeding one square foot which would make structure unsound.	Structure is in no danger of failing.
	Damage to wall, frame, bottom, and/or top slab	Cracks wider than ¼-inch or any evidence of soil entering the structure through cracks, or maintenance inspection personnel determines that the structure is not structurally sound.	Manhole/chamber is sealed and structurally sound.
	Damaged pipe joints	Cracks wider than ¼-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the structure at the joint of the inlet/outlet pipes.	No soil or water enters and no water discharges at the joint of inlet/outlet pipes.

NO. 9 – FENCING

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Erosion or holes under fence	Erosion or holes more than 4 inches high and 12-18 inches wide permitting access through an opening under a fence.	No access under the fence.
Wood Posts, Boards and Cross Members	Missing or damaged parts	Missing or broken boards, post out of plumb by more than 6 inches or cross members broken	No gaps on fence due to missing or broken boards, post plumb to within 1½ inches, cross members sound.
	Weakened by rotting or insects	Any part showing structural deterioration due to rotting or insect damage	All parts of fence are structurally sound.
	Damaged or failed post foundation	Concrete or metal attachments deteriorated or unable to support posts.	Post foundation capable of supporting posts even in strong wind.
Metal Posts, Rails and Fabric	Damaged parts	Post out of plumb more than 6 inches.	Post plumb to within 1½ inches.
		Top rails bent more than 6 inches.	Top rail free of bends greater than 1 inch.
		Any part of fence (including post, top rails, and fabric) more than 1 foot out of design alignment.	Fence is aligned and meets design standards.
		Missing or loose tension wire.	Tension wire in place and holding fabric.
	Deteriorated paint or protective coating	Part or parts that have a rusting or scaling condition that has affected structural adequacy.	Structurally adequate posts or parts with a uniform protective coating.
	Openings in fabric	Openings in fabric are such that an 8-inch diameter ball could fit through.	Fabric mesh openings within 50% of grid size.

NO. 10 – GATES/BOLLARDS/ACCESS BARRIERS

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Chain Link Fencing Gate	Damaged or missing members	Missing gate.	Gates in place.
		Broken or missing hinges such that gate cannot be easily opened and closed by a maintenance person.	Hinges intact and lubed. Gate is working freely.
		Gate is out of plumb more than 6 inches and more than 1 foot out of design alignment.	Gate is aligned and vertical.
		Missing stretcher bar, stretcher bands, and ties.	Stretcher bar, bands, and ties in place.
	Locking mechanism does not lock gate	Locking device missing, no-functioning or does not link to all parts.	Locking mechanism prevents opening of gate.
	Openings in fabric	Openings in fabric are such that an 8-inch diameter ball could fit through.	Fabric mesh openings within 50% of grid size.
Bar Gate	Damaged or missing cross bar	Cross bar does not swing open or closed, is missing or is bent to where it does not prevent vehicle access.	Cross bar swings fully open and closed and prevents vehicle access.
	Locking mechanism does not lock gate	Locking device missing, no-functioning or does not link to all parts.	Locking mechanism prevents opening of gate.
	Support post damaged	Support post does not hold cross bar up.	Cross bar held up preventing vehicle access into facility.
Bollards	Damaged or missing	Bollard broken, missing, does not fit into support hole or hinge broken or missing.	No access for motorized vehicles to get into facility.
	Does not lock	Locking assembly or lock missing or cannot be attached to lock bollard in place.	No access for motorized vehicles to get into facility.
Boulders	Dislodged	Boulders not located to prevent motorized vehicle access.	No access for motorized vehicles to get into facility.
	Circumvented	Motorized vehicles going around or between boulders.	No access for motorized vehicles to get into facility.

NO. 11 – GROUNDS (LANDSCAPING)

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash or litter	Any trash and debris which exceed 1 cubic foot per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size office garbage can). In general, there should be no visual evidence of dumping.	Trash and debris cleared from site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Trees and Shrubs	Hazard	Any tree or limb of a tree identified as having a potential to fall and cause property damage or threaten human life. A hazard tree identified by a qualified arborist must be removed as soon as possible.	No hazard trees in facility.
	Damaged	Limbs or parts of trees or shrubs that are split or broken which affect more than 25% of the total foliage of the tree or shrub.	Trees and shrubs with less than 5% of total foliage with split or broken limbs.
		Trees or shrubs that have been blown down or knocked over.	No blown down vegetation or knocked over vegetation. Trees or shrubs free of injury.
		Trees or shrubs which are not adequately supported or are leaning over, causing exposure of the roots.	Tree or shrub in place and adequately supported; dead or diseased trees removed.

NO. 12 – ACCESS ROADS

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Trash and debris exceeds 1 cubic foot per 1,000 square feet (i.e., trash and debris would fill up one standard size garbage can).	Roadway drivable by maintenance vehicles.
		Debris which could damage vehicle tires or prohibit use of road.	Roadway drivable by maintenance vehicles.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Blocked roadway	Any obstruction which reduces clearance above road surface to less than 14 feet.	Roadway overhead clear to 14 feet high.
		Any obstruction restricting the access to a 10- to 12 foot width for a distance of more than 12 feet or any point restricting access to less than a 10 foot width.	At least 12-foot of width on access road.
Road Surface	Erosion, settlement, potholes, soft spots, ruts	Any surface defect which hinders or prevents maintenance access.	Road drivable by maintenance vehicles.
	Vegetation on road surface	Trees or other vegetation prevent access to facility by maintenance vehicles.	Maintenance vehicles can access facility.
Shoulders and Ditches	Erosion	Erosion within 1 foot of the roadway more than 8 inches wide and 6 inches deep.	Shoulder free of erosion and matching the surrounding road.
	Weeds and brush	Weeds and brush exceed 18 inches in height or hinder maintenance access.	Weeds and brush cut to 2 inches in height or cleared in such a way as to allow maintenance access.
Modular Grid Pavement	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Damaged or missing	Access surface compacted because of broken or missing modular block.	Access road surface restored so road infiltrates.

NO. 13 – BASIC BIOFILTRATION SWALE (GRASS)

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash and/or debris accumulated on the bioswale site.	No trash or debris on the bioswale site.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Swale Section	Sediment accumulation	Sediment depth exceeds 2 inches in 10% of the swale treatment area.	No sediment deposits in grass treatment area of the bioswale.
		Sediment inhibits grass growth over 10% of swale length.	Grass growth not inhibited by sediment.
		Sediment inhibits even spreading of flow.	Flow spreads evenly through swale
	Erosion/scouring	Eroded or scoured swale bottom due to channelization or high flows.	No eroded or scoured areas in bioswale. Cause of erosion or scour addressed.
	Poor vegetation coverage	Grass is sparse or bare or eroded patches occur in more than 10% of the swale bottom.	Swale has no bare spots and grass is thick and healthy.
	Grass too tall	Grass excessively tall (greater than 10 inches), grass is thin or nuisance weeds and other vegetation has taken over.	Grass is between 3 and 4 inches tall, thick and healthy. No clippings left in swale. No nuisance vegetation present.
	Excessive shade	Grass growth is poor because sunlight does not reach swale.	Health grass growth or swale converted to a wet bioswale.
	Constant baseflow	Continuous flow through the swale, even when it has been dry for weeks or an eroded, muddy channel has formed in the swale bottom.	Baseflow removed from swale by a low-flow pea-gravel drain or bypassed around the swale.
	Standing water	Water pools in the swale between storms or does not drain freely.	Swale freely drains and there is no standing water in swale between storms.
Flow Spreader	Channelization	Flow concentrates and erodes channel through swale.	No flow channels in swale.
		Flow from spreader not uniformly distributed across entire swale width.	Flows are spread evenly over entire swale width.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 14 – WET BIOFILTRATION SWALE

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance Is Performed
Site	Trash and debris	Any trash and/or debris accumulated at the site.	No trash or debris at the site.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Swale Section	Sediment accumulation	Sediment depth exceeds 2 inches in 10% of the swale treatment area.	No sediment deposits in treatment area.
	Erosion/scouring	Eroded or scoured swale bottom due to channelization or high flows.	No eroded or scoured areas in bioswale. Cause of erosion or scour addressed.
	Water depth	Water not retained to a depth of about 4 inches during the wet season.	Water depth of 4 inches through out swale for most of wet season.
	Vegetation ineffective	Vegetation sparse, does not provide adequate filtration or crowded out by very dense clumps of cattail or nuisance vegetation.	Wetland vegetation fully covers bottom of swale and no cattails or nuisance vegetation present.
	Insufficient water	Wetland vegetation dies due to lack of water.	Wetland vegetation remains healthy (may require converting to grass lined bioswale)
Flow Spreader	Concentrated flow	Flow from spreader not uniformly distributed across entire swale width.	Flows are spread evenly over entire swale width.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 15 – FILTER STRIP			
Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash and debris accumulated on the filter strip site.	Filter strip site free of any trash or debris
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Grass Strip	Sediment accumulation	Sediment accumulation on grass exceeds 2 inches depth.	No sediment deposits in treatment area.
	Erosion/scouring	Eroded or scoured swale bottom due to channelization or high flows.	No eroded or scoured areas in bioswale. Cause of erosion or scour addressed.
	Grass too tall	Grass excessively tall (greater than 10 inches), grass is thin or nuisance weeds and other vegetation has taken over.	Grass is between 3 and 4 inches tall, thick and healthy. No clippings left in swale. No nuisance vegetation present.
	Vegetation ineffective	Grass has died out, become excessively tall (greater than 10 inches) or nuisance vegetation is taking over.	Grass is healthy, less than 9 inches high and no nuisance vegetation present.
Flow Spreader	Concentrated flow	Flow from spreader not uniformly distributed across entire swale width.	Flows are spread evenly over entire swale width.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 16 – WETPOND			
Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash and debris accumulated on the wetpond site.	Wetpond site free of any trash or debris.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Side Slopes of Dam, Berm, internal berm or Embankment	Rodent holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed or destroyed and dam or berm repaired.
	Tree growth	Tree growth threatens integrity of dams, berms or slopes, does not allow maintenance access, or interferes with maintenance activity. If trees are not a threat to dam, berm or embankment integrity, are not interfering with access or maintenance or leaves do not cause a plugging problem they do not need to be removed.	Trees do not hinder facility performance or maintenance activities.
	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted slope.	Slopes stabilized using appropriate erosion control measures. If erosion is occurring on compacted slope, a licensed civil engineer should be consulted to resolve source of erosion.
Top or Side Slopes of Dam, Berm, internal berm or Embankment	Settlement	Any part of a dam, berm or embankment that has settled 4 inches lower than the design elevation.	Top or side slope restored to design dimensions. If settlement is significant, a licensed civil engineer should be consulted to determine the cause of the settlement.
	Irregular surface on internal berm	Top of berm not uniform and level.	Top of berm graded to design elevation.
Pond Areas	Sediment accumulation (except first wetpool cell)	Accumulated sediment that exceeds 10% of the designed pond depth.	Sediment cleaned out to designed pond shape and depth.
	Sediment accumulation (first wetpool cell)	Sediment accumulations in pond bottom that exceeds the depth of sediment storage (1 foot) plus 6 inches.	Sediment storage contains no sediment.
	Liner damaged (If Applicable)	Liner is visible or pond does not hold water as designed.	Liner repaired or replaced.
	Water level (first wetpool cell)	First cell empty, doesn't hold water.	Water retained in first cell for most of the year.
	Algae mats (first wetpool cell)	Algae mats develop over more than 10% of the water surface should be removed.	Algae mats removed (usually in the late summer before Fall rains, especially in Sensitive Lake Protection Areas.)
Gravity Drain	Inoperable valve	Valve will not open and close.	Valve opens and closes normally.
	Valve won't seal	Valve does not seal completely.	Valve completely seals closed.
Emergency Overflow Spillway	Tree growth	Tree growth impedes flow or threatens stability of spillway.	Trees removed.

NO. 16 – WETPOND

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance Is Performed
	Rock missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway. Rip-rap on inside slopes need not be replaced.	Spillway restored to design standards.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than 1/2-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.

NO. 17 – WETVAULT

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Trash and debris accumulated on facility site.	Trash and debris removed from facility site.
Treatment Area	Trash and debris	Any trash and debris accumulated in vault (includes floatables and non-floatables).	No trash or debris in vault.
	Sediment accumulation	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6 inches.	No sediment in vault.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Vault Structure	Damage to wall, frame, bottom, and/or top slab	Cracks wider than ½-inch, any evidence of soil entering the structure through cracks, vault does not retain water or qualified inspection personnel determines that the vault is not structurally sound.	Vault is sealed and structurally sound.
	Baffles damaged	Baffles corroding, cracking, warping and/or showing signs of failure or baffle cannot be removed.	Repair or replace baffles or walls to specifications.
	Ventilation	Ventilation area blocked or plugged.	No reduction of ventilation area exists.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.
Gravity Drain	Inoperable valve	Valve will not open and close.	Valve opens and closes normally.
	Valve won't seal	Valve does not seal completely.	Valve completely seals closed.
Access Manhole	Access cover/lid damaged or difficult to open	Access cover/lid cannot be easily opened by one person. Corrosion/deformation of cover/lid.	Access cover/lid can be opened by one person.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Access doors/plate has gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and covers access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or plate.	Lifting rings sufficient to lift or remove door or plate.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.

NO. 18 – STORMWATER WETLAND			
Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Trash and debris accumulated on facility site.	Trash and debris removed from facility site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Side Slopes of Dam, Berm, internal berm or Embankment	Rodent holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed or destroyed and dam or berm repaired.
	Tree growth	Tree growth threatens integrity of dams, berms or slopes, does not allow maintenance access, or interferes with maintenance activity. If trees are not a threat to dam, berm, or embankment integrity or not interfering with access or maintenance, they do not need to be removed.	Trees do not hinder facility performance or maintenance activities.
	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted slope.	Slopes stabilized using appropriate erosion control measures. If erosion is occurring on compacted slope, a licensed civil engineer should be consulted to resolve source of erosion.
Top or Side Slopes of Dam, Berm, internal berm or Embankment	Settlement	Any part of a dam, berm or embankment that has settled 4 inches lower than the design elevation.	Top or side slope restored to design dimensions. If settlement is significant, a licensed civil engineer should be consulted to determine the cause of the settlement.
	Irregular surface on internal berm	Top of berm not uniform and level.	Top of berm graded flat to design elevation.
Pond Areas	Sediment accumulation (first cell/forebay)	Sediment accumulations in pond bottom that exceeds the depth of sediment storage (1 foot) plus 6 inches.	Sediment storage contains no sediment.
	Sediment accumulation (wetland cell)	Accumulated sediment that exceeds 10% of the designed pond depth.	Sediment cleaned out to designed pond shape and depth.
	Liner damaged (If Applicable)	Liner is visible or pond does not hold water as designed.	Liner repaired or replaced.
	Water level (first cell/forebay)	Cell does not hold 3 feet of water year round.	3 feet of water retained year round.
	Water level (wetland cell)	Cell does not retain water for at least 10 months of the year or wetland plants are not surviving.	Water retained at least 10 months of the year or wetland plants are surviving.
	Algae mats (first cell/forebay)	Algae mats develop over more than 10% of the water surface should be removed.	Algae mats removed (usually in the late summer before Fall rains, especially in Sensitive Lake Protection Areas.)
	Vegetation	Vegetation dead, dying, or overgrown (cattails) or not meeting original planting specifications.	Plants in wetland cell surviving and not interfering with wetland function.

NO. 18 – STORMWATER WETLAND

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance Is Performed
Gravity Drain	Inoperable valve	Valve will not open and close.	Valve opens and closes normally.
	Valve won't seal	Valve does not seal completely.	Valve completely seals closed.
Emergency Overflow Spillway	Tree growth	Tree growth impedes flow or threatens stability of spillway.	Trees removed.
	Rock missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway. Rip-rap on inside slopes need not be replaced.	Spillway restored to design standards.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 19 – SAND FILTER POND			
Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance Is Performed
Site	Trash and debris	Trash and debris accumulated on facility site.	Trash and debris removed from facility site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover (not in the treatment area)	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Pre-Treatment (if applicable)	Sediment accumulation	Sediment accumulations in pond bottom that exceeds the depth of sediment storage (1 foot) plus 6 inches.	Sediment storage contains no sediment.
	Liner damaged (If Applicable)	Liner is visible or pond does not hold water as designed.	Liner repaired or replaced.
	Water level	Cell empty, doesn't hold water.	Water retained in first cell for most of the year.
	Algae mats	Algae mats develop over more than 10% of the water surface should be removed.	Algae mats removed (usually in the late summer before Fall rains, especially in Sensitive Lake Protection Areas.)
Pond Area	Sediment accumulation	Sediment or crust depth exceeds ½-inch over 10 % of surface area of sand filter.	No sediment or crust deposit on sand filter that would impede permeability of the filter section.
	Grass (if applicable)	Grass becomes excessively tall (greater than 6 inches) or when nuisance weeds and other vegetation start to take over or thatch build up occurs.	Mow vegetation and/or remove nuisance vegetation.
Side Slopes of Pond	Rodent holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed or destroyed and dam or berm repaired.
	Tree growth	Tree growth threatens integrity of dams, berms or slopes, does not allow maintenance access, or interferes with maintenance activity. If trees are not a threat to dam, berm, or embankment integrity or not interfering with access or maintenance, they do not need to be removed.	Trees do not hinder facility performance or maintenance activities.
	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted slope.	Slopes stabilized using appropriate erosion control measures. If erosion is occurring on compacted slope, a licensed civil engineer should be consulted to resolve source of erosion.

NO. 19 – SAND FILTER POND

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance Is Performed
Sand Filter Media	Plugging	Drawdown of water through the sand filter media, takes longer than 24 hours, and/or flow through the overflow pipes occurs frequently. A sieve analysis of >4% -100 or >2% -200 requires replacing sand filter media.	Sand filter media surface is aerated and drawdown rate is normal.
	Prolonged flows	Sand is saturated for prolonged periods of time (several weeks) and does not dry out between storms due to continuous base flow or prolonged flows from detention facilities.	Excess flows bypassed or confined to small portion of filter media surface.
	Short circuiting	Flows become concentrated over one section of the sand filter rather than dispersed or drawdown rate of pool exceeds 12 inches per hour.	Flow and percolation of water through the sand filter is uniform and dispersed across the entire filter area and drawdown rate is normal.
	Media thickness	Sand thickness is less than 6 inches.	Rebuild sand thickness to a minimum of 6 inches and preferably to 18 inches.
Underdrains and Clean-Outs	Sediment/debris	Underdrains or clean-outs partially plugged or filled with sediment and/or debris. Junction box/cleanout wyes not watertight.	Underdrains and clean-outs free of sediment and debris and are watertight.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than 1/8-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
Rock Pad	Missing or out of place	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil.	Rock pad restored to design standards.
Flow spreader	Concentrated flow	Flow from spreader not uniformly distributed across sand filter.	Flows spread evenly over sand filter.

NO. 20 – SAND FILTER VAULT

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Trash and debris accumulated on facility site.	Trash and debris removed from facility site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Pre-Treatment Chamber	Sediment accumulation	Sediment accumulation exceeds the depth of the sediment zone plus 6 inches.	Sediment storage contains no sediment.
Sand Filter Media	Sediment accumulation	Sediment depth exceeds ½-inch on sand filter media.	Sand filter freely drains at normal rate.
	Trash and debris	Trash and debris accumulated in vault (floatables and non-floatables).	No trash or debris in vault.
	Plugging	Drawdown of water through the sand filter media, takes longer than 24 hours, and/or flow through the overflow pipes occurs frequently. A sieve analysis of >4% -100 or >2% -200 requires replacing sand filter media.	Sand filter media drawdown rate is normal.
	Short circuiting	Seepage or flow occurs along the vault walls and corners. Sand eroding near inflow area. Cleanout wyes are not watertight.	Sand filter media section re-laid and compacted along perimeter of vault to form a semi-seal. Erosion protection added to dissipate force of incoming flow and curtail erosion.
Vault Structure	Damaged to walls, frame, bottom and/or top slab.	Cracks wider than ½-inch, any evidence of soil entering the structure through cracks or qualified inspection personnel determines that the vault is not structurally sound.	Vault replaced or repaired to provide complete sealing of the structure.
	Ventilation	Ventilation area blocked or plugged.	No reduction of ventilation area exists.
Underdrains and Cleanouts	Sediment/debris	Underdrains or clean-outs partially plugged, filled with sediment and/or debris or not watertight.	Underdrains and clean-outs free of sediment and debris and sealed.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 20 – SAND FILTER VAULT

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Access Manhole	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Large access doors/plate	Damaged or difficult to open	Large access doors or plates cannot be opened/removed using normal equipment.	Replace or repair access door so it can be opened as designed.
	Gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and covers access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or plate.	Lifting rings sufficient to lift or remove door or plate.

NO. 21 – STORMFILTER (CARTRIDGE TYPE)			
Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash or debris which impairs the function of the facility.	Trash and debris removed from facility.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oils, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Life cycle	System has not been inspected for three years.	Facility is re-inspected and any needed maintenance performed.
Vault Treatment Area	Sediment on vault floor	Greater than 2 inches of sediment.	Vault is free of sediment.
	Sediment on top of cartridges	Greater than ½ inch of sediment.	Vault is free of sediment.
	Multiple scum lines above top of cartridges	Thick or multiple scum lines above top of cartridges. Probably due to plugged canisters or underdrain manifold.	Cause of plugging corrected, canisters replaced if necessary.
Vault Structure	Damage to wall, Frame, Bottom, and/or Top Slab	Cracks wider than ½-inch and any evidence of soil particles entering the structure through the cracks, or qualified inspection personnel determines the vault is not structurally sound.	Vault replaced or repaired to design specifications.
	Baffles damaged	Baffles corroding, cracking warping, and/or showing signs of failure as determined by maintenance/inspection person.	Repair or replace baffles to specification.
Filter Media	Standing water in vault	9 inches or greater of static water in the vault for more than 24 hours following a rain event and/or overflow occurs frequently. Probably due to plugged filter media, underdrain or outlet pipe.	No standing water in vault 24 hours after a rain event.
	Short circuiting	Flows do not properly enter filter cartridges.	Flows go through filter media.
Underdrains and Clean-Outs	Sediment/debris	Underdrains or clean-outs partially plugged or filled with sediment and/or debris.	Underdrains and clean-outs free of sediment and debris.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.
Access Manhole	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Large access doors/plate	Damaged or difficult to open	Large access doors or plates cannot be opened/removed using normal equipment.	Replace or repair access door so it can be opened as designed.

NO. 21 – STORMFILTER (CARTRIDGE TYPE)

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and cover access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or plate.	Lifting rings sufficient to lift or remove door or plate.

NO. 22 – BAFFLE OIL/WATER SEPARATOR			
Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash or debris which impairs the function of the facility.	Trash and debris removed from facility.
	Contaminants and pollution	Floating oil in excess of 1 inch in first chamber, any oil in other chambers or other contaminants of any type in any chamber.	No contaminants present other than a surface oil film.
Vault Treatment Area	Sediment accumulation	Sediment accumulates exceeds 6 inches in the vault.	No sediment in the vault.
	Discharge water not clear	Inspection of discharge water shows obvious signs of poor water quality- effluent discharge from vault shows thick visible sheen.	Effluent discharge is clear.
	Trash or debris accumulation	Any trash and debris accumulation in vault (floatables and non-floatables).	Vault is clear of trash and debris.
	Oil accumulation	Oil accumulations that exceed 1 inch, at the surface of the water in the oil/water separator chamber.	No visible oil depth on water.
Vault Structure	Damage to Wall, Frame, Bottom, and/or Top Slab	Cracks wider than ½-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound.	Vault replaced or repaired to design specifications.
	Baffles damaged	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance inspection personnel.	Repair or replace baffles to specifications.
Gravity Drain	Inoperable valve	Valve will not open and close.	Valve opens and closes normally.
	Valve won't seal	Valve does not seal completely.	Valve completely seals closed.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.
Access Manhole	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Large access doors/plate	Damaged or difficult to open	Large access doors or plates cannot be opened/removed using normal equipment.	Replace or repair access door so it can opened as designed.
	Gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and cover access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or cover/lid.	Lifting rings sufficient to lift or remove cover/lid.

NO. 23 – COALESCING PLATE OIL/WATER SEPARATOR

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Site	Trash and debris	Any trash or debris which impairs the function of the facility.	Trash and debris removed from facility.
	Contaminants and pollution	Floating oil in excess of 1 inch in first chamber, any oil in other chambers or other contaminants of any type in any chamber.	No contaminants present other than a surface oil film.
Vault Treatment Area	Sediment accumulation in the forebay	Sediment accumulation of 6 inches or greater in the forebay.	No sediment in the forebay.
	Discharge water not clear	Inspection of discharge water shows obvious signs of poor water quality - effluent discharge from vault shows thick visible sheen.	Repair function of plates so effluent is clear.
	Trash or debris accumulation	Trash and debris accumulation in vault (floatables and non-floatables).	Trash and debris removed from vault.
	Oil accumulation	Oil accumulation that exceeds 1 inch at the water surface in the in the coalescing plate chamber.	No visible oil depth on water and coalescing plates clear of oil.
Coalescing Plates	Damaged	Plate media broken, deformed, cracked and/or showing signs of failure.	Replace that portion of media pack or entire plate pack depending on severity of failure.
	Sediment accumulation	Any sediment accumulation which interferes with the operation of the coalescing plates.	No sediment accumulation interfering with the coalescing plates.
Vault Structure	Damage to Wall, Frame, Bottom, and/or Top Slab	Cracks wider than 1/8-inch and any evidence of soil particles entering the structure through the cracks, or maintenance inspection personnel determines that the vault is not structurally sound.	Vault replaced or repaired to design specifications.
	Baffles damaged	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Repair or replace baffles to specifications.
Ventilation Pipes	Plugged	Any obstruction to the ventilation pipes.	Ventilation pipes are clear.
Shutoff Valve	Damaged or inoperable	Shutoff valve cannot be opened or closed.	Shutoff valve operates normally.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than 1/8-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
Access Manhole	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Ladder rungs unsafe	Missing rungs, misalignment, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.

NO. 23 – COALESCING PLATE OIL/WATER SEPARATOR

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Large access doors/plate	Damaged or difficult to open	Large access doors or plates cannot be opened/removed using normal equipment.	Replace or repair access door so it can opened as designed.
	Gaps, doesn't cover completely	Large access doors not flat and/or access opening not completely covered.	Doors close flat and cover access opening completely.
	Lifting Rings missing, rusted	Lifting rings not capable of lifting weight of door or plate.	Lifting rings sufficient to lift or remove door or plate.

NO. 24 – CATCH BASIN INSERT

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Media Insert	Visible Oil	Visible oil sheen passing through media	Media inset replaced.
	Insert does not fit catch basin properly	Flow gets into catch basin without going through media.	All flow goes through media.
	Filter media plugged	Filter media plugged.	Flow through filter media is normal.
	Oil absorbent media saturated	Media oil saturated.	Oil absorbent media replaced.
	Water saturated	Catch basin insert is saturated with water, which no longer has the capacity to absorb.	Insert replaced.
	Service life exceeded	Regular interval replacement due to typical average life of media insert product, typically one month.	Media replaced at manufacturer's recommended interval.
	Seasonal maintenance	When storms occur and during the wet season.	Remove, clean and replace or install new insert after major storms, monthly during the wet season or at manufacturer's recommended interval.